



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,868	04/12/2001	Jori Arrakoski	NC30307	5180
30973	7590	07/13/2005	EXAMINER	
SCHEEF & STONE, L.L.P.			CHANG, RICHARD	
5956 SHERRY LANE				
SUITE 1400				
DALLAS, TX 75225			ART UNIT	PAPER NUMBER
			2663	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/833,868

Applicant(s)

ARRAKOSKI ET AL.

Examiner

Richard Chang

Art Unit

2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 18-19 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-14 is/are allowed.
- 6) ☒ Claim(s) 1-10, 15-17, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's arguments and amendments with respect to claims 1-21 have been fully considered but are moot in view of the new ground(s) of rejection.

Claims 18-19 had been canceled.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-10, 15-17 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 6,349,091 ("Li") in view of US patent 6,137,802 ("Jones et al.").

Regarding claims 1 and 20-21, Li teaches a two-tier wireless network (2 as a wireless access network for providing radio communication of data) (See Fig. 1A) comprising means and steps of

forming a cluster (12) as the first tier of network (2) (a first-tier mesh) of a plurality of nodes (10) and within a cluster (12) the cluster head (14) (each of the first-tier nodes of the plurality of first-tier nodes) is capable of communicating data with member nodes (at least selected others of the first-tier nodes) wherein one of those cluster member

Art Unit: 2663

nodes designated as a cluster head node (14) (at least one of the first-tier nodes forming a first-tier sink node) (See Fig. 1A, Col 4, lines 1-9),

forming a backbone network (16) as the second tier of network (2) (at least a second-tier mesh) of a plurality of the head nodes (14) of different clusters (12) (a plurality of second-tier nodes) and within a backbone network (16) the head nodes (14) of different clusters (12) (each of the second-tier nodes of the plurality of second-tier nodes) is capable of communicating data with each other (at least selected others of the second-tier nodes), and

providing dynamic selection of cluster head nodes within the backbone network (16) (at least one of the second-tier nodes forming a second-tier sink node) (See Fig. 1A, Col 4, lines 9-20).

Li teaches substantially all the claimed invention but did not disclose expressly the particular application involving limitations of

“the second-tier sink node further capable of communicating with the first-tier sink node of said first-tier mesh”.

Jones et al. teach an ad-hoc 2-tiers network with 1st group and 2nd group wherein the sink node (20) of the 1st group is capable of communication with the sink node (22) of the 2nd group. (See Fig. 1, Col. 3, lines 22-36).

A person of ordinary skill in the art would have been motivated to employ Jones et al. in Li in order to obtain a two-tier wireless network and to take advantage of the sink node (20) of the 1st group capable of communication with the sink node (22) of the 2nd group in claims 1 and 20-21.

The suggestion/motivation to do so would have been to enable the sink node (20) of the 1st group of communication with the sink node (22) of the 2nd group, as suggested by Jones et al. in Col. 3, lines 22-36. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Jones et al. with the LI to obtain the inventions specified in claims 1 and 20-21.

Regarding claim 2, Li further teaches that a two-tier wireless network (2) employs an intranet protocol for communications within the two-tier network. It is inherently that the cluster (12) members (10) (the first-tier nodes of said first-tier mesh) have operational characteristics suitable to the local range node communication (operable pursuant to first-tier-mesh operational characteristics) and the nodes (14) of the backbone network (16) (the second-tier nodes of said second-tier mesh) have operational characteristics suitable to the long range cluster communication (operational pursuant to second-tier-mesh operation characteristics), and these operation characteristics are not the same (the first-tier-mesh operational characteristics ..., dissimilar) (See Fig. 1A, Col 4, lines 17-20).

Regarding claim 3, this claim has limitations that is similar to those of claim 1 and Li further teaches that the communication within a cluster (12) (the first-tier-mesh operation characteristics) utilizes a first transmission frequency (See Fig. 1A, Col 4, lines 5-8) and the communication within the backbone network (16) (the second-tier-mesh operation characteristics) utilizes a second transmission frequency (See Fig. 1A, Col 4, lines 9-11) and these two transmission frequencies may be different (the first

frequency bandwidth and the second ... nonoverlapping portions) (See Fig. 1A, Col 10, lines 65-66), thus it is rejected with the same rationale applied against claim 1 above.

Regarding claim 4, this claim has limitations that is similar to those of claim 1 and Li further teaches that the head node (14) (at least one first-tier node) of the cluster (12) (said first-tier mesh) and the cluster head nodes (14) (at least one second tier node) of the backbone network (16) (said second-tier mesh) are co-located, the head node (14) of the cluster (12) (the at least one first-tier node co-located with the at least one second-tier node) capable of communicating with a plurality of nodes (10) within the cluster (12) (at least selected others of the first-tier-nodes) and the cluster head nodes (14) of the backbone network (16) (at least one second-tier node co-located with the at least one first-tier node) capable of communicating with the head nodes (14) of different clusters within a backbone network (16) (at least selected others of the second-tier nodes) (See Fig. 1A, Col 4, lines 3-14), thus it is rejected with the same rationale applied against claim 1 above.

Regarding claim 5-7, these claims have limitations that is similar to those of claims 1-3, thus it is rejected with the same rationale applied against claims 1-3 above.

Regarding claim 8-10, this claim has limitations that is similar to those of claim 1, thus it is rejected with the same rationale applied against claim 1 above.

Regarding claim 15-17, these claims have limitations that is similar to those of claims 1-3, thus it is rejected with the same rationale applied against claims 1-3 above.

Allowable Subject Matter

4. Claims 11-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if no art rejection can be applied.

Examiner's Statement of Reasons for Allowance

2. The following is an examiner's statement of reasons for allowance:

The prior art along or in combination fails to teach or make obvious the following limitations:

"a third-tier mesh formed of a plurality of third-tier nodes, each of the third-tier nodes of the a plurality of third-tier nodes capable of communicating data with at least selected others of the third-tier at least one of the third-tier nodes forming a third-tier sink node" as recited in the independent claim 11.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chang whose telephone number is (571) 272-3129. The examiner can normally be reached on Monday - Friday from 8 AM to 5 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2663

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

rk
rk

Richard Chang
Patent Examiner
Art Unit 2663


RICKY NGO
PRIMARY EXAMINER

7/10/05